Az Aerospace Institute

Business Plan Outline

MISSION STATEMENT

The Arizona Aerospace Institute, a public-private partnership serves as a focal point for meeting the critical needs of the global aerospace industry.

VISION

The vision for the Arizona Aerospace Institute is that Arizona becomes a highly desirable region for aerospace research, training and manufacturing that works in partnership with the educational, non-profit and private sector to build a base of defense and aviation firms around the State. The Aerospace Institute should leverage the State's existing assets to create additional research opportunities with working nodes around Arizona.

The early vision for the Arizona Aerospace Institute might be articulated as:

The Arizona Aerospace Institute will be catalyst to making Arizona the premier research, production and innovation center for the aerospace and defense industry around the world.

EXECUTIVE SUMMARY

The Arizona Aerospace Institute (Az AI) is a performance driven entity. For decades, some of the top leaders within the aerospace industry have chosen Arizona for important research, testing and manufacturing operations. The industry has been well represented in Arizona -- originally, the attraction included the active military bases coupled with near perfect aviation climate and open skies. In order to capitalize on our existing partners and strategically plan further economic development for Arizona, a group of leaders within the State set about to develop an Aerospace Institute to maintain and grow these relationships along with aggressively pursuing federal and private industry research and manufacturing opportunities.

The Aerospace Institute will solidify relationships within the community and state and local governments and help Arizona maintain prominence in the aerospace field by promoting and engaging in large scale federal opportunities focusing on research and economic development. Finally, we see Az AI as a leader in national and global issues in the aerospace industry.

To achieve this vision, we will:

- Develop a leadership team of advocates from government, science, higher educational institutions and the private sector that will create a roadmap for the development of the Arizona Aerospace Institute.
- Identify and utilize incentives and programs to encourage public/private partnerships in the aerospace industry.

- Work with Arizona economic development leaders to create a better tax and business environment to encourage investment in Arizona and promote Arizona as a desirable destination for relocation and expansion.
- Develop an action plan with academia to create a more robust and attainable education pathway for students into the aerospace industry
- Work with AzAI partners to develop new technologies and create technology transfer opportunities into the private sector for commercial and technological applications.
- Take advantage of emerging opportunities in scientific research and workforce development.

1. History of Aerospace Industry in Arizona

According to Greater Phoenix Economic Council statistics, Arizona ranks in the top five for federal defense contracts and in the top 10 for aerospace exports. Statewide, this sector employs nearly 69,000 Arizonans. The United States Commission Aerospace and Aviation Industry ranked Arizona 8th in the country for total employment and 4th in the country in terms of employment per 1,000.

Maricopa County is home to nearly 300 aerospace companies with more than 40,000 employees in manufacturing and service industries, making it the 10th largest aerospace market in the United States. Both Tucson and Phoenix are listed within the top ten best cities for aerospace.

2. Opportunity for Industry

Our desire is to create a vibrant economic opportunity within the Aerospace industry for the state of Arizona. We will use existing resources in the state of Arizona to help achieve the current and future needs of the global aerospace industry. To accomplish this, the Institute will innovate through active research; create value for sale (product development) and training for future scientists (workforce education), technicians, and engineers.

Within the overall structure of the Aerospace Institute, the opportunities for the industry include: research and development, entrepreneurship, economic development, and workforce development through education and training.

One immediate goal is to retain and utilize the talent pool and resources that exist at the Air Force Research Lab located at the ASU Polytechnic campus; this is a huge opportunity for the industry to continue with the high level of research already taking place. (Many of our interested partners are contributors and participants in this research.)

3. Solution -- We propose to do this by focusing on eight major research clusters areas of specialty

To capitalize on the talent and rich resources, we will focus on the following research clusters:

a). Next Gen (*Modeling/Simulation & Design*)
b). Human Performance Enhancement (*Human-Interface Cognitive, Modeling, Simulation & Design*)
c). Optical Imaging Sciences
d). Aerospace Medicine
e). Data & Information Intelligence/Security
f). Sustainable Energies (*Engines/Energy, Battery, Storage, etc*)

g). UAV Development & Testing and Education
h). Space

Through the Institute's mission driven work, we will focus on growing the sector, advancing technology in aerospace and aviation, and improving the Arizona workforce for the future. Our goals will include:

- Our products/services would be based upon the individual research cluster(s).
- We will focus on advancing research and education and strengthening STEM in school systems to create a pipeline of trained talent in the coming years.
- We bring value to our customers by offering world- class, high level research to our partners and clients.
- By growing this important economic sector, we will add economic value to region.

4. Technology

- Our technology enabler focuses initially on modeling and simulation.
- Our IP portfolio will fall within each of the six individual research clusters and will be negotiated at the front end depending upon the research/partners and desired outcomes.
- The general and specific R&D relationships we have are with all of the major universities within the state as well as all the large aerospace companies, along with a high level engagement with the federal agencies.

5. Customers

- Our customers are primarily the federal government and private companies doing specific research in one of the six areas of specialty.
- Our prospective partner list includes all of the large companies located in Arizona, as well as some of the smaller ones focusing on one area of research.
- We anticipate generating $5-6 million revenue in the first year, growing steadily in the following years.
- We are primarily targeting large aerospace companies, but smaller focused companies are also a target.
- There is an opportunity to focus heavily on research with the modeling and simulation field for large government projects. (FAA, DOD, DHS, etc...)
- For the state of Arizona, we will engage industry advocates, economic development leaders, academia, and elected officials to become champions for these initiatives.

6. Market

- The Arizona aerospace market increased by nearly 7% from 2001-2006 compared to a 10.3% decline nationally (Source: IMPALN, 2006)
- The dynamics of this industry within Arizona are the: Aerospace Product and Parts Manufacturing; Air Transportation; Support Activities for Air Transportation; Commercial Air, Rail and Water Transportation; Search, Detection, Navigation, Guidance; Aeronautical and Nautical System and Instrument Manufacturing; and Aerospace Medicine/Life Sciences
- We will be targeting the U.S. and global markets directly from the six clusters.

7. Competition

- There are a number of institutes and aerospace clusters around the United States where a region or state has targeted this industry for growth and development.
- The Ohio Aerospace Institute formed as collaboration between nine universities, private corporations and two federal laboratories. This educational and research institute contacts with the both the private and public sectors to conduct state of the art research in collaboration with the proper academic partners.
- Aero Montreal
- Dayton, Ohio and Wright-Pat initiatives - They have a strong collaboration with the USAF at Wright Patterson AFB in Dayton Ohio and their economic development executives have a long history of working with their congressional delegation to bring more research to the region.
- Texas – Texas' investment and commitment to the aerospace industry is one of the largest in the country. Their state has made the economic development of this sector a continuing priority with innovative programs to entice companies to choose Texas. They also produce a highly qualified workforce from their universities.
- New Mexico has invested heavily in the space ports concept for the future, banking on commercial and leisure space travel in the coming decades. They have a strong history in aerospace and have an Aerospace Corporation office.
- Their strengths are that they are established and well-funded by a robust federal delegation bringing home funding; also they have strong connections into an established Air Force base. Most have partnered with universities to support research opportunities.
- Their weaknesses are difficult to note, one could say they are limited by their name branding and only being focused in their singular regions; this affects their ability to have a strong global portfolio. Also, only a few offer the focused research program that we are planning to build.
- SAIC possible competitor

8. <u>Sustainable Competitive Advantage</u>

- What factors make us uniquely qualified to realize this opportunity? We are uniquely qualified because of the existing scale and diversity of the aerospace industry, skilled workforce, customized training programs with the major universities and community colleges within the state.
- Arizona boasts some of the most desirable flying conditions in the world for training and testing.
- Our distinctive compete niches are the multiple research clusters, leveraging existing programs and the early collaborations and alliances.
- We are going to build and maintain a competitive advantage over time through our strong corporate partnerships, innovation and marketing efforts.
- Airspace issues – federal policy issues to resolve airspace issues – UAV Teammaker – Other states have been working on this issues – we need to have federal advocates –
- Universities – can provide testing facilities (UA hypersonic) UA will build one for flight and material testing – Companies could come in and rent time at these facilities and save time. Wind tunnel and material testing – military too – high level of security – Institute would help with political leverage. Auxiliary services – good for supply chain companies.

- We don't need a huge amount of airspace – You need restricted airspaces and carve out a corner. Florence – Casa Grande
- Wind tunnel – shared assets – UA could do research
- Alex negotaties the IP master contracts on the agreements – exclisuve licenses
- Hypersonic wind tunnel – Stimulus dollars
- Policy statement to make sure that the work is balanced.
- Tempus – cyber warfare – info sciences – might be a good use for the AFRL
- Underground testing too – mines can be
- Alex Daly – From Raytheon – works with UA -
- UAV center – could create partnerships between universities for the engineering schools.

9. Operations and Alliances

- Our business operating model is based on either a Consortium agreement or 501 C3 status.
- All aerospace/aviation related business alliances are important to us.

10. Management

- Board of Directors (see attached diagrams/flowcharts)
    - CEO rotates north and south – balanced geographically – 15 north of baseline – Engineering deans – CEOs – dean at ASU – out of state representatives –
    - Nationwide search - for the CEO
    -
- Advisors targeting: Is the Management firm hired to go after federal funding opportunities and proposals?
- Potentially, the Aerospace Institute will incubate within another complimentary nonprofit to conserve resources and streamline operations.

11. Financials and Investment

- Our revenue targets over the next 5 years are focused in the aerospace industry but primarily from the federal grants.
- Our conservative earnings projections are anticipated to be conservatively $10M over five years.
- We continue to work on collaborations for investments and sources.
- The investment needed now and in the future is reflected in our proposed budget; however, for initial start up costs we conservatively estimate the cost to be $700,000 to build a management staff to secure critical alliances.
- The next round of investment would be immediately re-invested into the Institute.
- The general and specific investors we have and are targeting are focused within the aerospace industry.

12. Strategic Objectives and Milestones

- What are your key strategic objectives for the next 1, 3 and 5 years? Our key strategic objectives are to be global leaders within 5 years, in key research areas.

- The 3 to 5 milestones we will achieve in the next year is to establish a board, have 5-10 corporate partners and at least six research projects and will have hired a management company/CEO to work on securing federal funds.

13. Plans

- Our marketing and research plan will begin through our industrial and corporate partnership and the chambers of commerce.
- Battelle would be retained during the start up to create a defined road map for the growth and development of the Aerospace Institute. This critical step will ensure the long term viability of the Institute.

14. Risks

- The 3 to 5 major risks to our business are:
  - Lack of funding –corporate contributions
  - Lack of corporate participation
  - No federal awards
- We will mitigate the risks by the following:
  - Heavy marketing/clear communication on expected outcomes
  - University collaborations/support
  - Early corporate partnerships
  - University led projects for federal awards – having a designated leader within each cluster to insure funding.

15. Summary

- To summarize the investment opportunity AI will do the following:

  - AI will be a major international hub of aerospace research and activity
  - AI will be global leaders for the national air traffic systems
  - AI will conduct innovative research for Next Gen products
  - AI will develop more sustainable energy solutions that can be used for aerospace and aviation
  - AI will pioneer and build solutions for future product development
  - AI will bring training/education for scientists and future aerospace industry employees

AI Suggested Organizational Model:

AI may be set up as a Consortium agreement; with each individual research cluster set up as an independent 501 c3. Additionally, status allows the Institute to act as policy, lobbying/advocacy group and as a vehicle for economic development.

Consortium Agreement:

Pros:

- ASU or UofA or Embry Riddle could be key player – depending on research cluster area
- Each cluster has own licensing rights – smaller
- No legal docs to draw up

Cons:

- Not considered by federal agencies a legal entity
- Difficult for funding (P.I.'s would be the leads)
- Fundraising or partnership dollars difficult to quantify

501 c 3 Status:

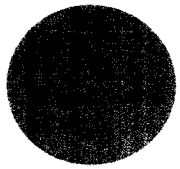
Pros:

- Recognized legal entity
- Able to fundraise as 501 c 3
- Possible (waiting for Arizona statute) tax exemption for specialty insurance for Board Members

Cons:

- Bogged down with legalities
- Need to retain outside legal counsel
- Need to retain outside accountants

Organization Chart: 501c3 or 501c4 Non-Profit Organization/Consortium Agreement



Arizona Aerospace Institute

Board Members

Management Firm
Funding & Proposal Opportunities
(operating or managing partner)

Advisory Council
Subcommittees

Committees
- Committee for each cluster per project
- Committee for IP

Rights & Obligations
IP
Processes

Statement of Work, Contribution of Funding, Resources, & IP

501c3 or 501c4 Non-Profit Organization/Consortium Agreement

I. Services
II. Solutions

	A	B	C	D	E	F	G	H
Project: Clusters as examples	Next Gen (Modeling, Simulation & Design)	Human Performance Enhancement (Human Interface-Cognitive, Modeling, Simulation & Design)	Optical Imaging Sciences	Aerospace Medicine	Data & Information Intelligence/ Security	Sustainable Energies (Engines/ Energy, Battery Storage, etc)	UAV Development & Testing Education	Space
Univ:	ASU, UofA, NAU	ASU, UofA	UofA	ASU, UofA	ASU, UofA, NAU	ASU, ERU	ASU, UofA, NAU	ASU, UofA, NAU, ERU
Industry: - Other Businesses	Raytheon, Honeywell, Mayo, Orbital	Honeywell, Boeing, Mayo	Raytheon, Lockheed Martin	Mayo, AFRL	LM, Raytheon, Honeywell	Honeywell, Raytheon, LM	Raytheon, LM, Boeing, Honeywell	???
Funding:	DoD, NSF	DoD, NIH	NSF, NASA	NIH, NASA, NSF	DHS, DoD	DoD, DoT, FAA	DOD, DHS	NASA

**Companies & Universities noted above are for illustrated purposes only (act as examples), no commitments have been made at this time*

Organization Chart: 501c3 or 501c4 Non-Profit Organization/Consortium Agreement